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09/676,556	09/30/2000	Yen-Kuang Chen	042390.P8657	6918

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EXAMINER	
DO, CHAT C	
ART UNIT	PAPER NUMBER
2124	

DATE MAILED: 07/03/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 09/676,556	Applicant(s) CHEN ET AL.
	Examiner Chat C. Do	Art Unit 2124

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *9/30/00; 11/15/00; 12/15/00; 10/9/02* .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-28* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-28* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) *4* .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

Information Disclosure Statement

1. The information disclosure statement filed 10/09/02 fails to comply with the provisions of 37 CFR 1.97, 1.98 and MPEP § 609 because the authors' name of the last two references are missing. It has been placed in the application file, but the information referred to therein has not been considered as to the merits. Applicant is advised that the date of any re-submission of any item of information contained in this information disclosure statement or the submission of any missing element(s) will be the date of submission for purposes of determining compliance with the requirements based on the time of filing the statement, including all certification requirements for statements under 37 CFR 1.97(e). See MPEP § 609 ¶ C(1).

Claim Objections

2. Claims 10-12, 22-23, and 28 are objected to because of the following informalities:

In claims 10-11, the terms "MMX" and "PMADDWD" must be written in full.

Claims 22-23 and 28 have the same problem.

In addition, claim 10 should depend on claim 9.

In claim 12, there should be a term "and" in between single processor implementation and vector processing.

Appropriate correction is required.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 1-5, 12-17, and 24-27 are rejected under 35 U.S.C. 102(b) as being anticipated by Thuyen Le et al. ("A new flexible architecture for variable length DC targeting shape-adaptive transform").

Re claim 1, Thuyen Le et al. disclose a method comprising a multiplying a matrix "[A]" (Cn) by a matrix "[X]" (x(n)) to obtain a matrix "[Y]" (yn) (as seen in equations 1-2 and left column page 1950 lines 5-18) wherein multiplication operations within a matrix "[A]" are paired (Figure 1 and left column page 1951 lines 3-7).

Re claim 2, Thuyen Le et al. further disclose in equation 2 that a matrix "[A]" (C(n)) is factored into a butterfly matrix "[B]" (F of equation 3), a shuffle matrix "[S]" (S of equation 7), and a multiplication matrix "[M]" (P of equation 4); and wherein multiplication operations within multiplication matrix "[M]" are grouped for simultaneous execution (as seen in Figure 1).

Re claim 3, Thuyen Le et al. further disclose at least one n-point discrete cosine transform is performed (left column in page 1950 lines 8-10).

Re claim 4, Thuyen Le et al. further disclose multimedia compression is performed (left column in page 1949 lines 1-5 of introduction section).

Re claim 5, Thuyen Le et al. further disclose at least one SA-DCT is performed (right column in page 1949 lines 1-6 and left column in page 1950 lines 1-6 of algorithm for variable length DCT section).

Re claim 12, Thuyen Le et al. further disclose implemented using at least one of VLSI, single processor, and vector processing (right column in page 1949 lines 9-15).

Re claim 13, it is a readable storage medium claim of claim 1. Thus, claim 13 is also rejected under the same rationale in the rejection of rejected claim 1.

Re claim 14, it is a readable storage medium claim of claim 2. Thus, claim 14 is also rejected under the same rationale in the rejection of rejected claim 2.

Re claim 15, it is a readable storage medium claim of claim 3. Thus, claim 15 is also rejected under the same rationale in the rejection of rejected claim 3.

Re claim 16, it is a readable storage medium claim of claim 4. Thus, claim 16 is also rejected under the same rationale in the rejection of rejected claim 4.

Re claim 17, it is a readable storage medium claim of claim 5. Thus, claim 17 is also rejected under the same rationale in the rejection of rejected claim 5.

Re claim 24, it is a readable storage medium claim of claim 12. Thus, claim 24 is also rejected under the same rationale in the rejection of rejected claim 12.

Re claim 25, it has the same limitation as cited in claim 3. Thus, claim 25 is also rejected under the same rationale in the rejection of rejected claim 3.

Re claim 26, it has the same limitation as cited in claim 5. Thus, claim 26 is also rejected under the same rationale in the rejection of rejected claim 5.

Re claim 27, it has the same limitation as cited in claim 12. Thus, claim 27 is also rejected under the same rationale in the rejection of rejected claim 12.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

6. Claims 6-8 and 18-20 are rejected under 35 U.S.C. 103(a) as being obvious over Thuyen Le et al. ("A new flexible architecture for variable length DCT targeting shape-adaptive transform") in view of Huang (U.S. 5,610,849).

Re claims 6-8, Thuyen Le et al. do not disclose at least one n-point IDCT/SA-IDCT is performed for multimedia decompression. However, Huang discloses in Figure 1 that the same hardware configuration can be used either for DCT/IDCT in multimedia for compression and decompression. In addition, the IDCT/SA-IDCT is just the inversed process of DCT/SA-DCT. Therefore, it would have been obvious to a person having ordinary skill in the art at the time the invention is made to add the IDCT/SA-IDCT as seen in Huang's Figure 1 into Thuyen Le et al.'s invention because it would enable the operator to retrieve the approximate original data back after manipulating.

Re claim 18, it is a readable storage medium claim of claim 6. Thus, claim 18 is also rejected under the same rationale in the rejection of rejected claim 6.

Re claim 19, it is a readable storage medium claim of claim 7. Thus, claim 19 is also rejected under the same rationale in the rejection of rejected claim 7.

Re claim 20, it is a readable storage medium claim of claim 8. Thus, claim 20 is also rejected under the same rationale in the rejection of rejected claim 8.

7. Claims 9-11, 21-23, and 28 are rejected under 35 U.S.C. 103(a) as being obvious over Thuyen Le et al. ("A new flexible architecture for variable length DCT targeting shape-adaptive transform") in view of Dulong et al. (U.S. 5,983,257)

Re claims 9-11, Thuyen Le et al. do not disclose the above method is implemented using single instruction multiple data SIMD operations/MMX operations/PMADDWD instructions. However, the SIMD instruction is well known in the art for operating multiple data in a single instruction as seen in Dulong et al.'s invention (Figures 17-18 and col. 27 lines 55-65). Dulong et al. disclose in table 9 to perform multiple data using the MMX instruction (col. 27 lines 55-56). Dulong et al. also disclose the PMADDWD instruction in SIMD operation in table 6 (col. 22 lines 54). Therefore, it would have been obvious to a person having ordinary skill in the art at the time the invention is made to implement the whole computation in a SMID operation/MMX operations/PMADDWD instructions as seen in Dulong et al.'s invention into Thuyen Le et al.'s invention because it would enable to increase the system performance by executing multiple data simultaneously.

Re claim 21, it is a readable storage medium claim of claim 9. Thus, claim 21 is also rejected under the same rationale in the rejection of rejected claim 9.

Re claim 22, it is a readable storage medium claim of claim 10. Thus, claim 22 is also rejected under the same rationale in the rejection of rejected claim 10.

Re claim 23, it is a readable storage medium claim of claim 11. Thus, claim 23 is also rejected under the same rationale in the rejection of rejected claim 11.

Re claim 28, it has the same limitation as cited in claim 9. Thus, claim 28 is also rejected under the same rationale in the rejection of rejected claim 9.

Conclusion

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

a. U.S. Patent No. 5,990,956 to Lee discloses a method and apparatus for PADDING a video signal for shape adaptive transformation.

b. U.S. Patent No. 6,408,025 to Kaup discloses a method and configuration for coding and decoding digitized pictures.

c. U.S. Patent No. 5,764,787 to Nickerson discloses a multi-byte processing of byte based image data.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Chat C. Do whose telephone number is (703) 305-5655. The examiner can normally be reached on M => F from 7:00 AM to 4:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chaki Kakali can be reached on (703) 305-9662. The fax phone numbers for the

organization where this application or proceeding is assigned are (703) 746-7239 for regular communications and (703) 746-7238 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 305-3900.

Chat C. Do
Examiner
Art Unit 2124

June 25, 2003

KAKALI CHAKI
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2100